

PRELIMINARY AMENDMENT
Division of Serial No. 08/464,554
Attorney Docket No. 0590112

than 158° F.;

(c) a 50% D-86 distillation point [less] no greater
than [208° F.] 215° F.;

(d) a 90% D-86 distillation point no greater
than 315° F.;

C1 (e) a paraffin content greater than [72] 75 volume
percent;

(f) an olefin content less than 8 volume percent;

(g) an aromatics content of at least 4.5 volume
percent; and

(h) an octane value of at least 87.

Please add the following claims:

3
85. An unleaded gasoline, suitable for combustion in an
automotive engine, having the following properties:

(a) a Reid Vapor Pressure less than 7.5 psi;

(b) a 10% D-86 distillation point no greater than 149° F.;

(c) a 50% D-86 distillation point no greater than 215° F.;

C2 (d) a 90% D-86 distillation point less than 300° F.;

(e) a paraffin content greater than 65 volume percent;

(f) an olefin content less than 8 volume percent;

(g) an aromatics content of at least 4.5 volume percent; and

(h) an octane value of at least 87.

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~~86~~. An unleaded gasoline, suitable for combustion in an automotive engine, having the following properties:

- (a) a Reid Vapor Pressure less than 7.5 psi;
- (b) a 10% D-86 distillation point less than 140° F.;
- (c) a 50% D-86 distillation point no greater than 215° F.;
- (d) a 90% D-86 distillation point no greater than 315° F.;
- (e) a paraffin content greater than 65 volume percent;
- (f) an olefin content less than 8 volume percent;
- (g) an aromatics content of at least 4.5 volume percent; and
- (h) an octane value of at least 87.

C2

5
~~87~~

An unleaded gasoline, suitable for combustion in an automotive engine, having the following properties:

- (a) a Reid Vapor Pressure less than 7.5 psi;
- (b) a 10% D-86 distillation point no greater than 158° F.;
- (c) a 50% D-86 distillation point no greater than 215° F.;
- (d) a paraffin content greater than 65 volume percent;
- (e) an olefin content less than 8 volume percent;
- (f) an aromatics content of at least 4.5 volume percent; and
- (g) an octane value of at least 92.

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⁶
~~88~~. An unleaded gasoline, suitable for combustion in an automotive engine, having the following properties:

- (a) a Reid Vapor Pressure less than 7.5 psi;
- (b) a 10% D-86 distillation point no greater than 158° F.;
- (c) a 50% D-86 distillation point no greater than 215° F.;
- (d) a 90% D-86 distillation point less than 300° F.;
- (e) a paraffin content greater than 50 volume percent;
- (f) an olefin content less than 6 volume percent;
- (g) an aromatics content of at least 4.5 volume percent; and
- (h) an octane value of at least 92.

⁷
~~89~~. An unleaded gasoline, suitable for combustion in an automotive engine, having the following properties:

- C2
- (a) a Reid Vapor Pressure less than 7.0 psi;
 - (b) a 10% D-86 distillation point no greater than 158° F.;
 - (c) a 50% D-86 distillation point no greater than 215° F.;
 - (d) a paraffin content greater than 50 volume percent;
 - (e) an olefin content less than 6 volume percent;
 - (f) an aromatics content of at least 4.5 volume percent; and
 - (g) an octane value of at least 92.

²⁰
⁴ ⁵ ⁶ ~~80~~. An unleaded gasoline as defined in claim ² ³ ~~84~~, ~~85~~, ~~86~~, ~~87~~, ~~88~~, or ~~89~~ wherein the 50% D-86 distillation point is no greater than 210° F.

²¹
⁴ ⁵ ⁶ ~~91~~. An unleaded gasoline as defined in claim ² ³ ~~84~~, ~~85~~, ~~86~~, ~~87~~, ~~88~~, or ~~89~~ wherein the 50% D-86 distillation point is no greater than 205° F.

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³ ⁴ ⁸ ⁹² ¹ ²
~~85~~, ~~86~~, ~~87~~, or ~~88~~ wherein the Reid Vapor Pressure is less than
7.0 psi.

³⁷ ⁵ ⁷
⁹³ ⁸⁷ ⁸⁹ An unleaded gasoline as defined in claim ~~87~~ or ~~89~~
wherein the 90% D-86 distillation point is no greater than 315°F.

³ ⁴ ¹⁰ ⁹⁴ ¹ ²
~~85~~, ~~86~~ or ~~87~~ wherein the olefin content is less than 6 volume
percent.

³ ⁴ ⁹ ⁹⁵ ¹ ²
~~85~~, ~~86~~, ~~87~~, ~~88~~ or ~~89~~ wherein the olefin content is less than 4
volume percent.

⁴ ⁵ ¹⁴ ⁹⁶ ¹ ³
~~86~~, ~~87~~, ~~88~~ or ~~89~~ wherein the paraffin content is greater than 70
volume percent.

⁴ ⁵ ¹⁵ ⁹⁷ ¹ ³
~~86~~, ~~87~~, ~~88~~ or ~~89~~ wherein the paraffin content is greater than 72
volume percent.

³ ⁴ ¹² ⁹⁸ ¹ ²
~~85~~, or ~~86~~ wherein the octane value is at least 92.

³ ⁵ ¹³ ⁹⁹ ¹ ²
~~85~~, ~~87~~, ~~88~~, or ~~89~~ wherein the 10% D-86 distillation point is less
than 140° F.

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²³
4 ~~5~~ 100. An unleaded gasoline as defined in claim ~~84~~, ^{2 3} ~~85~~,
~~86~~, ~~87~~, or ~~88~~ wherein the Reid Vapor Pressure is less than 7.0
psi and the 50% D-86 distillation point is no greater than 210°F.

²⁴
4 ~~5~~ 101. An unleaded gasoline as defined in claim ~~84~~, ^{2 3} ~~85~~,
~~86~~, ~~87~~, or ~~88~~ wherein the Reid Vapor Pressure is less than 7.0
psi and the 50% D-86 distillation point is no greater than 205°F.

¹¹
3, 4 ~~5~~ 102. An unleaded gasoline as defined in claim ~~83~~, ^{1 2} ~~84~~,
~~85~~, ~~86~~, or ~~87~~ wherein the Reid Vapor Pressure is less than 7.0
psi and the olefin content is less than 6 volume percent.

¹⁷
C 2 4 ~~5~~ 103. An unleaded gasoline as defined in claim ~~82~~, ^{1 3} ~~83~~,
~~86~~, ~~87~~, or ~~88~~ wherein the Reid Vapor Pressure is less than 7.0
psi and the paraffin content is greater than 70 volume percent.

³⁰
5 ~~6~~ 104. An unleaded gasoline as defined in claim ~~84~~, ^{2 4} ~~85~~,
or ~~87~~ wherein the Reid Vapor Pressure is less than 7.0 psi, the
50% D-86 distillation point is no greater than 210° F., and the
90% D-86 distillation point is less than 300° F.

³¹
5 ~~6~~ 105. An unleaded gasoline as defined in claim ~~84~~, ^{2 4} ~~85~~,
or ~~87~~ wherein the Reid Vapor Pressure is less than 7.0 psi, the
50% D-86 distillation point is no greater than 205° F., and the
90% D-86 distillation point is less than 300° F.

³³
5 ~~6~~ 106. An unleaded gasoline as defined in claim ~~82~~, ^{3 4} ~~83~~,
~~87~~, or ~~88~~ wherein the Reid Vapor Pressure is less than 7.0 psi,

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the 50% D-86 distillation point is no greater than 210° F., and
the paraffin content is greater than 70 volume percent.

4 5 ²⁶ 107. An unleaded gasoline as defined in claim ^{2 3} ~~84~~, ~~85~~,
~~86~~, or ~~87~~ wherein the Reid Vapor Pressure is less than 7.0 psi,
the 50% D-86 distillation point is no greater than 210° F., and
the olefin content is less than 6 volume percent.

4 5 ²⁵ 108. An unleaded gasoline as defined in claim ^{2 3} ~~84~~, ~~85~~,
~~86~~, ~~87~~, or ~~88~~ wherein the Reid Vapor Pressure is less than 7.0
psi, the 50% D-86 distillation point is no greater than 205° F.,
and the olefin content is less than 4 volume percent.

C2 4 5 ³⁵ 109. An unleaded gasoline as defined in claim ³ ~~84~~,
~~86~~, or ~~87~~ wherein the Reid Vapor Pressure is less than 7.0 psi,
the 50% D-86 distillation point is no greater than 210° F., the
paraffin content is greater than 70 volume percent and the olefin
content is less than 6 volume percent.

4 5 ³⁴ 110. An unleaded gasoline as defined in claim ³ ~~84~~,
~~86~~, ~~87~~, or ~~88~~ wherein the Reid Vapor Pressure is less than 7.0
psi, the 50% D-86 distillation point is no greater than 205° F.,
the paraffin content is greater than 70 volume percent and the
olefin content is less than 4 volume percent.

4 5 ¹⁸ 111. An unleaded gasoline as defined in claim ^{1 3} ~~83~~, ~~88~~,
~~86~~, or ~~87~~ wherein the Reid Vapor Pressure is less than 7.0 psi,
the paraffin content is greater than 70 volume percent and the
olefin content is less than 6 volume percent.

D ³⁵
4 5 112. An unleaded gasoline as defined in claim ³~~85~~,
~~86~~, ~~87~~, ~~88~~, or ~~89~~ wherein the 50% D-86 distillation point is no
greater than 210° F. and the paraffin content is greater than 70
volume percent.

²¹
4 5 123. An unleaded gasoline as defined in claim ^{2 3}~~84~~, ~~85~~,
~~86~~, or ~~87~~ wherein the 50% D-86 distillation point is no greater
than 210° F. and the olefin content is less than 6 volume
percent.

C2 ²⁷
4 5 6 114. An unleaded gasoline as defined in claim ^{2 3}~~84~~, ~~85~~,
~~86~~, ~~87~~, ~~88~~, or ~~89~~ wherein the 50% D-86 distillation point is no
greater than 205° F. and the olefin content is less than 4 volume
percent.

³⁸
7 115. An unleaded gasoline as defined in claim ⁵~~87~~ or
~~88~~ wherein the 50% D-86 distillation point is no greater than
210° F. and the 90% D-86 distillation point is no greater than
315° F.

²⁸
5 7 116. An unleaded gasoline as defined in claim ^{2 4}~~84~~, ~~85~~,
~~87~~ or ~~88~~ wherein the 50% D-86 distillation point is no greater
than 205° F. and the 90% D-86 distillation point is less than
300° F.

¹⁹
4 5 117. An unleaded gasoline as defined in claim ^{1 3}~~87~~, ~~85~~,
~~86~~, or ~~87~~ wherein the paraffin content is greater than 70 volume
percent and the olefin content is less than 6 volume percent.

¹⁶
4, 5, 6, ¹²⁸. An unleaded gasoline as defined in claim ^{1 3}~~82, 83,~~
~~84, 85, 86, or 87~~ wherein the paraffin content is greater than 70
volume percent and the olefin content is less than 4 volume
percent.

³⁹
7 ¹¹⁹. An unleaded gasoline as defined in claim ⁵~~87~~ or
~~88~~ wherein the paraffin content is greater than 70 volume percent
and the 90% D-86 distillation point is no greater than 315° F.

³⁶
5, 7, ¹²⁰. An unleaded gasoline as defined in claim ⁴~~86;~~
~~87~~ or ~~88~~ wherein the paraffin content is greater than 70 volume
percent and the 90% D-86 distillation point is less than 300° F.

C2 ⁴⁰
7 ¹²¹. An unleaded gasoline as defined in claim ⁵~~87~~ or
~~88~~ wherein the paraffin content is greater than 70 volume
percent, the olefin content is less than 4 volume percent, and
the 90% D-86 distillation point is no greater than 315° F.

²⁹
4 ¹²². An unleaded gasoline as defined in claim ^{2 3}~~84, 85~~
or ~~86~~ wherein the octane value is at least 92 and the 50% D-86
distillation point is no greater than 210° F.

⁴¹
123. A method comprising:
(1) blending at least two hydrocarbon-containing streams
together to produce at least 50,000 gallons of an unleaded gasoline as
defined in claim ⁸⁷; and
(2) commencing delivery of unleaded gasoline produced in
step (1) to gasoline service stations.

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~~124~~. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline as defined in claim ~~84~~²; and

(2) commencing delivery of unleaded gasoline produced in step (1) to gasoline service stations.

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~~125~~. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline as defined in claim ~~85~~³; and

(2) commencing delivery of unleaded gasoline produced in step (1) to gasoline service stations.

C2

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~~126~~. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline as defined in claim ~~86~~⁴; and

(2) commencing delivery of unleaded gasoline produced in step (1) to gasoline service stations.

45

~~127~~. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline as defined in claim ~~87~~⁵; and

(2) commencing delivery of unleaded gasoline produced in step (1) to gasoline service stations.

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~~128~~. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline as defined in claim ~~87~~⁶; and

(2) commencing delivery of unleaded gasoline produced in step (1) to gasoline service stations.

~~47~~
129. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline as defined in claim ~~88~~⁷; and

(2) commencing delivery of unleaded gasoline produced in step (1) to gasoline service stations.

~~48~~
130. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline suitable for combustion in an automotive engine and having the following properties:

- (a) a Reid Vapor Pressure less than 7.5 psi;
- (b) a 10% D-86 distillation point no greater than 158° F.;
- (c) a 50% D-86 distillation point no greater than 212° F.;
- (d) a 90% D-86 distillation point no greater than 315° F.;
- (e) a paraffin content greater than 50 volume percent;
- (f) an olefin content less than 8 volume percent;
- (g) an aromatics content of at least 4.5 volume percent; and
- (h) an octane value of at least 87; and

(2) commencing delivery of unleaded gasoline produced in step (1) to gasoline service stations.

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~~11~~. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline suitable for combustion in an automotive engine and having the following properties:

- (a) a Reid Vapor Pressure less than 7.0 psi;
- (b) a 10% D-86 distillation point no greater than 158° F.;
- (c) a 50% D-86 distillation point no greater than 215° F.;
- (d) a paraffin content greater than 50 volume percent;
- (e) an olefin content less than 8 volume percent;
- (f) an aromatics content of at least 4.5 volume percent; and
- (g) an octane value of at least 87; and

(2) commencing delivery of unleaded gasoline produced in
C2 step (1) to gasoline service stations.

50
~~12~~. A method comprising:

(1) blending at least two hydrocarbon-containing streams together to produce at least 50,000 gallons of an unleaded gasoline suitable for combustion in an automotive engine and having the following properties:

- (a) a Reid Vapor Pressure less than 7.5 psi;
 - (b) a 10% D-86 distillation point no greater than 158° F.;
 - (c) a 50% D-86 distillation point no greater than 215° F.;
 - (d) a 90% D-86 distillation point no greater than 315° F.;
 - (e) a paraffin content greater than 65 volume percent;
 - (f) an olefin content less than 8 volume percent;
 - (g) an aromatics content of at least 4.5 volume percent; and
 - (h) an octane value of at least 87; and
- (2) commencing delivery of unleaded gasoline produced in

step (1) to gasoline service stations.

^{41 42 43 44 45}
^{46 48 51} 123. A method as defined in claim ~~123~~, ~~124~~, ~~125~~, ~~126~~, ~~127~~,
~~128~~, ~~130~~, or ~~132~~ wherein the Reid Vapor Pressure of said unleaded
gasoline is less than 7.0 psi.

^{41 42 43 44 48}
^{49 50 54} 124. A method as defined in claim ~~123~~, ~~124~~, ~~125~~, ~~126~~, ~~130~~,
or ~~131~~, or ~~132~~ wherein the octane value of said unleaded gasoline is at
least 92.

^{42 43 44 45 46}
^{47 48 50 60} 125. A method as defined in claim ~~124~~, ~~125~~, ~~126~~, ~~127~~, ~~128~~,
~~129~~, ~~130~~, ~~131~~, or ~~132~~ wherein the 50% D-86 distillation point of the
unleaded gasoline is no greater than 210° F.

^{42 43 44 45 46}
^{47 48 50 62} 126. A method as defined in claim ~~124~~, ~~125~~, ~~126~~, ~~127~~, ~~128~~,
C2 ~~129~~, ~~130~~, ~~131~~, or ~~132~~ wherein the 50% D-86 distillation point of the
unleaded gasoline is no greater than 205° F.

^{41 42 43 44 45}
^{46 47 48 49 50 56} 127. A method as defined in claim ~~123~~, ~~124~~, ~~125~~, ~~126~~, ~~127~~,
~~128~~, ~~129~~, ~~130~~, ~~131~~, or ~~132~~ wherein the 50% D-86 distillation point of
the unleaded gasoline is less than 200° F.

^{45 47 49}
⁶³ 138. A method as defined in claim ~~127~~, ~~129~~, or ~~131~~ wherein
the 90% D-86 distillation point of the unleaded gasoline is no greater
than 315° F.

^{41 43 44 45 46}
^{47 48 49 50 59} 139. A method as defined in claim ~~123~~, ~~125~~, ~~126~~, ~~127~~, ~~128~~,
~~129~~, ~~130~~, ~~131~~, or ~~132~~ wherein the paraffin content of the unleaded
gasoline is greater than 70 volume percent.

⁴³
⁴⁸ 140. A method as defined in claim ⁴⁸124, ⁴³125, ⁴⁴126, ⁴⁵127, ⁴⁶128, or ⁵⁰132 wherein the 50% D-86 distillation point of the unleaded gasoline is no greater than 210° F. and the Reid Vapor Pressure is less than 7.0 psi.

⁴⁶ 141. A method as defined in claim ⁴¹123, ⁴²124, ⁴³125, ⁴⁴126, ⁴⁵127, ⁴⁸128, ⁴⁷129, ⁴⁹130, ⁵⁰131, or ⁵⁰132 wherein said delivery in step (2) is commenced to a service station located in a geographical area wherein the operation of automobiles substantially contributes to air pollution.

⁵² 142. A method as defined in claim ⁵¹133 wherein said delivery in step (2) is commenced to a service station located in a geographical area wherein the operation of automobiles substantially contributes to air pollution.

⁵³ 143. A method as defined in claim ⁵⁴134 wherein said delivery in step (2) is commenced to a service station located in a geographical area wherein the operation of automobiles substantially contributes to air pollution.

⁶¹ 144. A method as defined in claim ⁶⁰135 wherein said delivery in step (2) is commenced to a service station located in a geographical area wherein the operation of automobiles substantially contributes to air pollution.

⁶⁶ 145. A method as defined in claim ⁶⁵136 wherein said delivery in step (2) is commenced to a service station located in a geographical area wherein the operation of automobiles substantially

contributes to air pollution.

⁶⁴
~~146~~. A method as defined in claim ~~140~~⁶³ wherein said delivery in step (2) is commenced to a service station located in a geographical area wherein the operation of automobiles substantially contributes to air pollution.

⁵⁶
C2 ⁴⁵ ⁴⁶ ⁴⁷ ⁴⁸ ⁴⁹ ⁵⁰ ⁴¹ ⁴² ⁴³ ⁴⁴
~~147~~. A method as defined in claim-~~123~~, ~~124~~, ~~125~~, ~~126~~, ~~127~~, ~~128~~, ~~129~~, ~~130~~, ~~131~~, or ~~132~~ wherein said delivery in step (2) is commenced to a service station located in Los Angeles county.

⁵³
~~148~~. A method as defined in claim-~~123~~⁵¹ wherein said delivery in step (2) is commenced to a service station located in Los Angeles county.

REMARKS

The present amendment amends claims 83 and 84 and adds claims 85 to 148, with claims 83 to 122 being composition claims and claims 123 to 148 being method claims, the latter directed to manufacturing and using unleaded automotive gasolines having properties for reducing automotive exhaust emissions.